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10/729,012	12/08/2003	Erling Reidar Andersen	23209	9116

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EXAMINER

LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

MAIL DATE	DELIVERY MODE
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07/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/729,012

Applicant(s)

ANDERSEN, ERLING REIDAR

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 1 and 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 3-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-10 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Jennifer A. Leung
6/21/2007

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12-8-03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 and 2, drawn to a process for hydrogenating a hydrocarbon fuel, classified in class 208, subclass 142.
 - II. Claims 3-10, drawn to an apparatus, classified in class 422, subclass 232.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In the instant case, the process as claimed can be practiced by another and materially different apparatus. For example, the process of hydrogenating a hydrocarbon fuel could be conducted by injecting hydrogen gas obtained from a pressurized gas cylinder into a tank containing hydrocarbon fuel.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

2. During a telephone conversation with Mr. Palmer DeMeo on April 19, 2007 a provisional election was made without traverse to prosecute the invention of Group II, claims 3-10. An affirmation of this election must be made by applicant in replying to this Office action.

3. Claims 1 and 2 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

4. The application priority (at page 1, lines 4-6) should be updated to read as, for example, "This is a continuation-in-part of US Patent Application 10/287,720, filed on Nov. 05, 2002, now US Patent number 6,800,258, which is a division of US Patent Application serial number 09/620,250 filed on July 20, 2000, now US Patent number 6,506,360."
5. The use of the trademarks "AirlockTM" (at page 25, line 5) and "Bunker CTM" (at page 26, line 3) have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker et al. (US 4,064,226) in view of Berry (US 1,565,249).

Regarding claims 3 and 6, Becker et al., as best understood, discloses an apparatus (see

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figure) comprising:

means to introduce an aqueous solution in said receptacle (i.e., by supplying an aqueous solution to the vessel **10** via dosing pump **27**) and to maintain said solution at a level (i.e., by controlling pumps **24, 27**);

means to introduce aluminum inside said receptacle (i.e., via lock **13**, container **14**); and

means to float and circulate a hydrocarbon fuel inside said receptacle above said level (i.e., by further supplying a hydrocarbon fuel into the vessel **10** via dosing pump **27**, and circulating the hydrocarbon fuel via pump **21** and loop **29**).

Please note that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, and the inclusion of a material or article worked upon by a structure being claimed does not impart patentability to apparatus claims. Therefore, the recitations with respect to the aluminum, aqueous solution and hydrocarbon fuel add no further patentable weight to the claim.

Also, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In the instant case, in the event that an aqueous solution and a hydrocarbon fuel were each fed to the reactor vessel **10** via dosing pump **27**, the hydrocarbon fuel would inherently “float” on the aqueous solution, given that the density of the hydrocarbon fuel is significantly lower than the density of the aqueous solution; i.e., hydrocarbons float on water. Depending on the quantity of aqueous solution in the vessel **10**, any hydrocarbon fuel located adjacent to the opening to loop **29** would then be circulated inside

the vessel **10**, by control of pump **21**.

Becker, however, is silent as to means to introduce aluminum comprising a means that introduces aluminum inside said receptacle below the level of the aqueous solution, such as a hopper mounted above the receptacle, a rotary feeder below said hopper, and a delivery pipe extending from the rotary feeder into the receptacle below the level of the aqueous solution.

Berry (FIGs. 1-3) teaches a means to introduce a solid into a receptacle, wherein the means introduces the solid into the receptacle below a liquid level in the receptacle, and the means comprises a hopper **M** mounted above the receptacle **A**, a rotary feeder (i.e., screw feed conveyor **L**) below said hopper **M**, and a delivery pipe **K** extending from the rotary feeder **L** into the receptacle **A** below the liquid **B** level in the receptacle.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the introducing means of Berry for the means for introducing aluminum in the apparatus of Becker, on the basis of suitability for the intended use and absent a showing of unexpected results thereof, because the feeding of solids into the receptacle below the liquid level, as taught by Berry, would inherently prevent any splashing of the liquid onto the upper walls of the receptacle. In addition, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select an appropriate length of delivery pipe immersion, relative to the level of the aqueous solution, in the modified apparatus of Becker, on the basis of suitability for the intended use and absent a showing of unexpected results thereof, because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

Regarding claim 4, Becker further discloses means to introduce makeup water in said

receptacle (i.e., by further feeding make-up water to the vessel **10** via dosing pump **27**).

Regarding claim 5, Becker further discloses means to recover precipitates from the receptacle (i.e., via pump **24** to line **30** and separator **25**).

Regarding claim 7, Becker is silent as to a means for circulating an aqueous solution in the aluminum delivery pipe (of the modified apparatus). Berry, however, further teaches a means for circulating solution into the delivery pipe (i.e., via conduit **O** to conduit **I**, which feeds solution to the pipe **K** via mixing funnel **J**; see FIGs. 1-3). It would have been obvious for one of ordinary skill in the art at the time the invention was made to further provide a means for circulating an aqueous solution in the aluminum delivery pipe in the modified apparatus of Becker, on the basis of suitability for the intended use and absent a showing of unexpected results thereof, because such means would prevent the adherence of solid or semi-solid material in the aluminum introducing means, as taught by Berry. (see page 2, lines 80-108).

Regarding claim 10, Becker further discloses means for recovering hydrogen gas from the receptacle (i.e., via conduit **20**, with valve **15**; see figure).

7. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker et al. (US 4,064,226) in view of Berry (US 1,565,249), as applied to claim 3 above, and further in view of Beebe (US 290,627).

The collective teaching of Becker et al. and Berry is silent as to the apparatus further comprising a horizontal screen mounted inside said receptacle below said level, and means for rotating said screen along a horizontal plane.

Beebe (FIGs. 1, 2) teaches an apparatus comprising receptacle (i.e., tank **A**) and a horizontal screen mounted inside the receptacle (i.e., a basket **F**, carrying a solid material for

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generating hydrogen gas), the screen being below the level of an aqueous solution (i.e., acidulated water from tank N) in said receptacle, wherein the apparatus further comprises a means for rotating said screen F along a horizontal plane (i.e., comprising a spindle G resting on bearing a, rotated by cross handle b).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a horizontal screen and means for rotating said screen in the modified apparatus of Becker et al., on the basis of suitability for the intended use thereof, because the horizontal screen and rotating means would have provided a means for maintaining the aluminum inside the receptacle for a desired residence time, and furthermore, the rotation would have provided agitation for preventing the aqueous solution from separating at the bottom of the receptacle, as suggested by Beebe (page 1, lines 59-68).

Conclusion

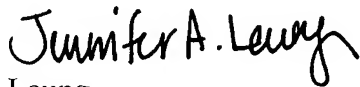
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink that reads "Jennifer A. Leung". The signature is written in a cursive, flowing style.

Jennifer A. Leung
June 21, 2007